

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A vibrator controlling circuit comprising:  
a square wave generating circuit for generating a square wave signal whose frequency changes according to the value of a voltage applied to a controlling terminal;  
a switching element which is turned on/off on the basis of said square wave signal to supply a driving current to a vibrator; and  
a frequency shift detecting circuit for detecting a frequency shift between the square wave signal from said square wave generating circuit and a resonance frequency of said vibrator, wherein  
a shift in the frequency generated by said square wave generating circuit is trimmed by a signal detected by said frequency shift detecting circuit.
2. (Canceled)
3. A vibrator controlling circuit according to claim 1, wherein the square wave signal generated by said square wave generating circuit is divided by a half-divider and the divided signal is applied to said switching element.
4. (Currently amended) ~~A vibrator controlling circuit according to claim 1,~~  
A vibrator controlling circuit comprising:  
a square wave generating circuit for generating a square wave signal whose frequency changes according to the value of a voltage applied to a controlling terminal;

a switching element which is turned on/off on the basis of said square wave signal to supply a driving current to a vibrator; and

a frequency shift detecting circuit for detecting a frequency shift between the square wave signal from said square wave generating circuit and a resonance frequency of said vibrator,

wherein a shift in the frequency generated by said square wave generating circuit is trimmed by a signal detected by said frequency shift detecting circuit, and

wherein said frequency shift detecting circuit includes a first switching element for switching a vibrating wave signal from said vibrator; an operational amplifier with the one input terminal supplied with a signal passed said first switching element and the other terminal supplied with the vibrating wave signal as it is; and a second switching element for passing an output signal from said operational amplifier to be supplied to a control (CTL) terminal of said square wave generating circuit.

5. (Original) A vibrator controlling circuit according to claim 4, wherein said first switching element is ON during 0 – 40 % of said square wave signal, said second switching element is ON during 40 – 100 % of said square wave signal, and 0 – 40 % and 40 % - 100 % of said vibrating wave signal are compared with each other.

6. (Original) A vibrator controlling circuit according to claim 1, wherein said square wave generating circuit, switching element and frequency shift detecting circuit are constructed of a single chip.

7. (Currently amended) A vibrator controlling circuit according to Claim 1, wherein said square wave generating circuit further comprises a control (CONT) terminal, a CONT signal supplied to the CONT terminal turns on the square wave generating circuit when the CONT signal changes from a first level to a second level upon a detection of a ringing signal.

8. (Currently amended) ~~A vibrator controlling circuit according to Claim 3,~~

A vibrator controlling circuit comprising:

a square wave generating circuit for generating a square wave signal whose frequency changes according to the value of a voltage applied to a controlling terminal;

a switching element which is turned on/off on the basis of said square wave signal to supply a driving current to a vibrator; and

a frequency shift detecting circuit for detecting a frequency shift between the square wave signal from said square wave generating circuit and a resonance frequency of said vibrator, wherein:

a shift in the frequency generated by said square wave generating circuit is trimmed by a signal detected by said frequency shift detecting circuit,

the square wave signal generated by said square wave generating circuit is divided by a half-divider and the divided signal is applied to said switching element, and

said half-divider further comprises a control (CONT) terminal, a CONT signal supplied to the CONT terminal turns on the half-divider when the CONT signal changes from a first level to a second level upon a detection of a ringing signal.

9. (Currently amended) A vibrator controlling circuit according to Claim 4, wherein said operational amplifier in said frequency shift detecting circuit further comprises a control (CONT) terminal, a CONT signal supplied to the CONT terminal turns on the operational amplifier when the CONT signal changes from a first level to a second level upon a detection of a ringing signal.